

# Public Meeting: Discuss ARB Guidelines for Rail Yard Health Risk Assessments

**August 28, 2006**  
**(Sacramento, CA)**

California Environmental Protection Agency

 **Air Resources Board**



# Overview of Presentations

- **Statewide Locomotive and Railyard Strategies**
- **Statewide Railyard Agreement**
- **Railyard Health Risk Assessments (HRAs)**
- **Guidelines for Railyard HRAs:**
  - **Emission Inventories**
  - **Air Dispersion Modelling**
  - **Health Risk Assessments**
- **Air District and Public Comments**
- **Summary and Next Steps**





# Statewide Locomotive and Railyard Strategies

- South Coast Locomotive Agreement (1998)
- ARB Diesel Regulation - Intrastate Locomotives (2004)
- Statewide Railyard Agreement (2005)
- ARB Cargo Handling Equipment Regulation (2005)
- Element of California's Goods Movement Plan (2006)
- National rulemaking for Tier 3 locomotives (2007)
- Greater than 90% reduction in diesel PM and NOx by 2020 and localized risk reduction



# Statewide Railyard Agreement

- **Limit non-essential idling to 60 minutes.**
- **Install anti-idling devices.**
- **Use ultra-low sulfur diesel fuel .**
- **Identify and repair smoking locomotives.**
- **Reduce locomotive diesel PM by 20% in and around rail yards.**



# Statewide Railyard Agreement (cont'd)

- 16 new railyard risk assessments by 2008.
- Additional mitigation measures in the future.



# **Railyard HRA Responsibilities**

- **The Railroads (with their consultants)**
  - 80% work within yards
  - Railyard emission Inventory
  - Railyard air dispersion modeling
- **ARB**
  - Review of emissions and modeling
  - Emissions/Modeling outside of the yards
  - Risk assessments
  - Draft HRA reports

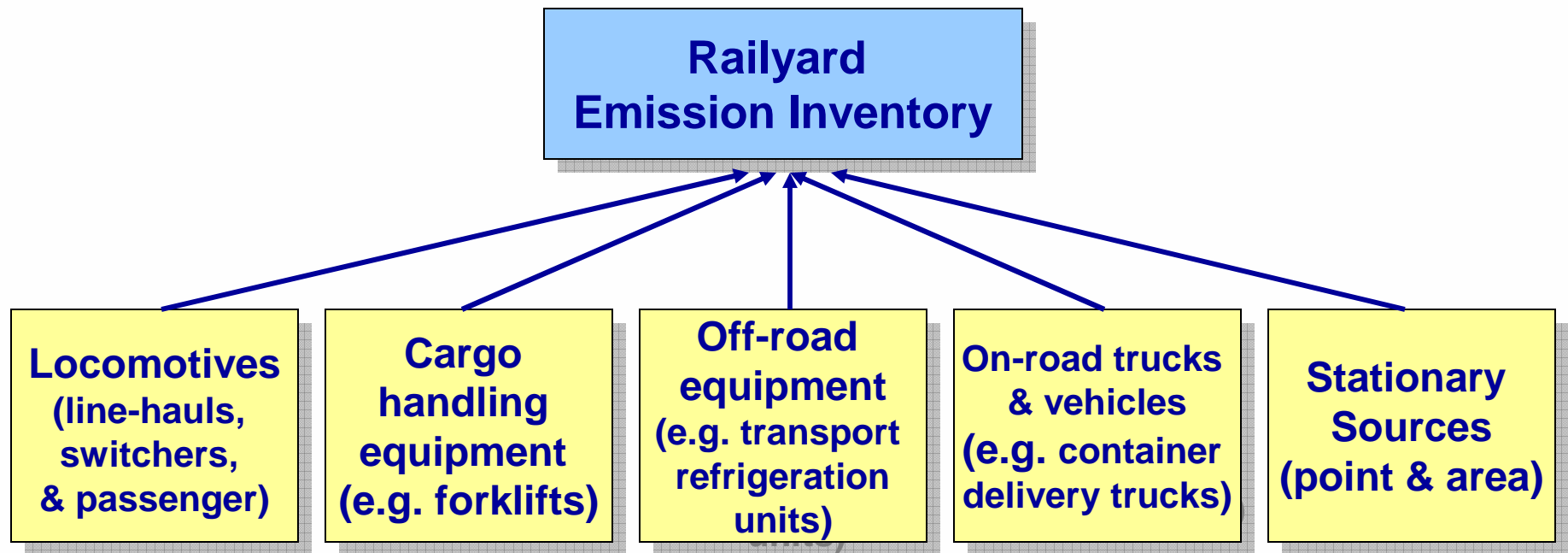




An aerial photograph of a large rail yard. The yard features numerous parallel tracks running vertically through the center of the image. To the left and right of the tracks are residential neighborhoods with houses and trees. In the background, there are industrial buildings and a body of water. The text "RAILYARD EMISSION INVENTORY GUIDELINES" is overlaid in large, bold, yellow capital letters across the middle of the image.

# **RAILYARD EMISSION INVENTORY GUIDELINES**

# Railyard Emission Sources





# Methodology of Emission Inventory

- Fleet/Equipment population
- Operation activities
  - Operation hours
  - Vehicle mileage traveled
  - Daily activity hours
- Emission factors
- Fuel characteristics
  - Fuel usage
  - Sulfur content



# Locomotive Emissions

- Population of locomotives by classes or groups
- Notch or power settings & idling
- Emission factors
- Hours of operation
- Fuel consumption and correction



# Cargo Handling and Off-Road Equipment Emissions

- Population of equipment
- Emission factors by size and model year
- Activity hours





# On-Road Truck/Vehicle Emissions

- Number of trucks and vehicles
- Emission factor per mileage traveled
- Vehicle mileage
- Idling emission and hours

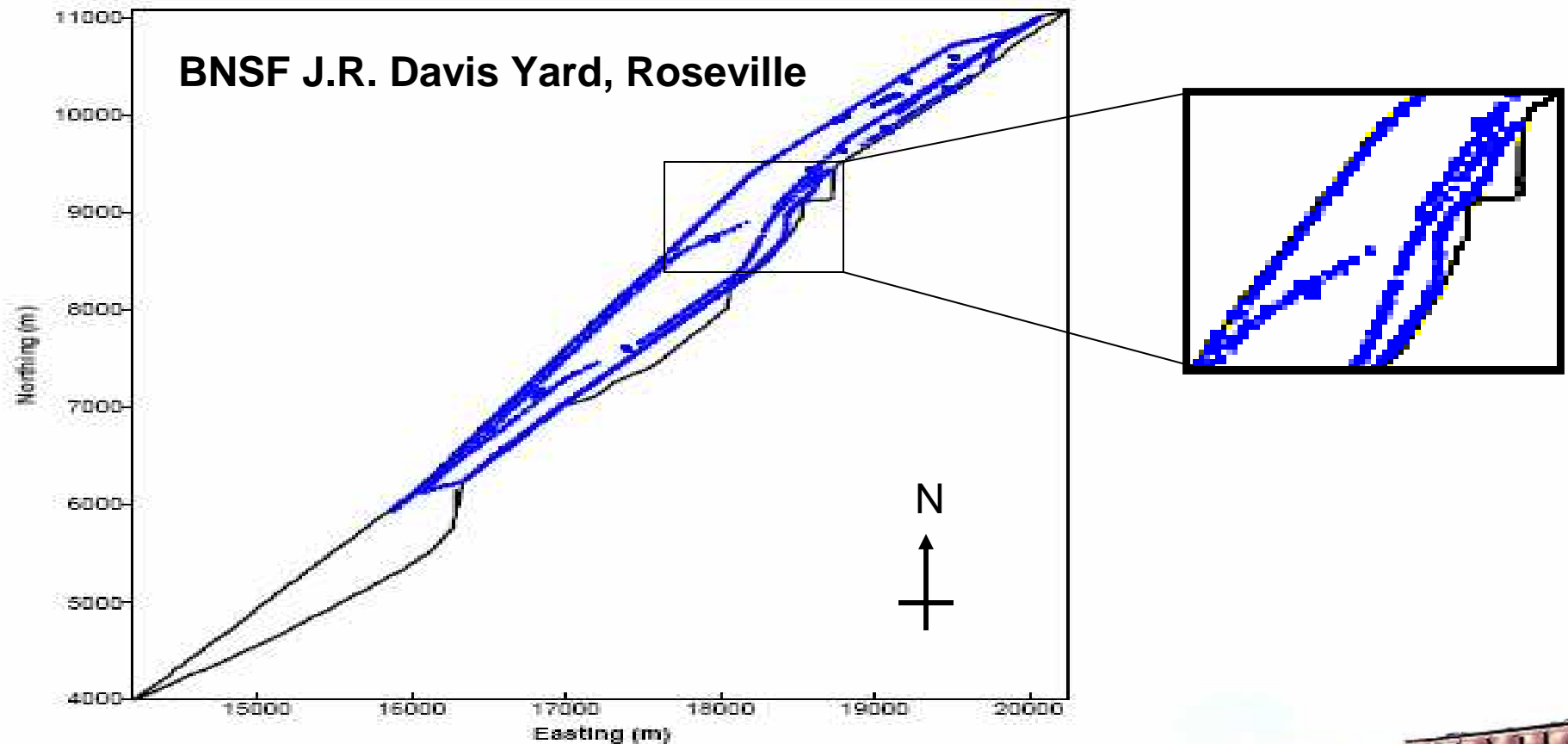


# Stationary Source Emissions

- Number of sources (point and area)
- Emission factor
- Fuel consumption



# Spatial Distribution of Emissions







# ***ARB Guidelines for Rail Yard Health Risk Assessment***

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# Introduction

- Rail Yard Health Risk Assessment (HRA) Guidelines
- Identify the risks associated with toxic air contaminants (TACs), especially diesel particulate matter (DPM)



# Introduction

## ➤ Air Dispersion Modeling

- Emission inventory inputs
- Meteorological inputs
- Computer model → TAC concentration distributions

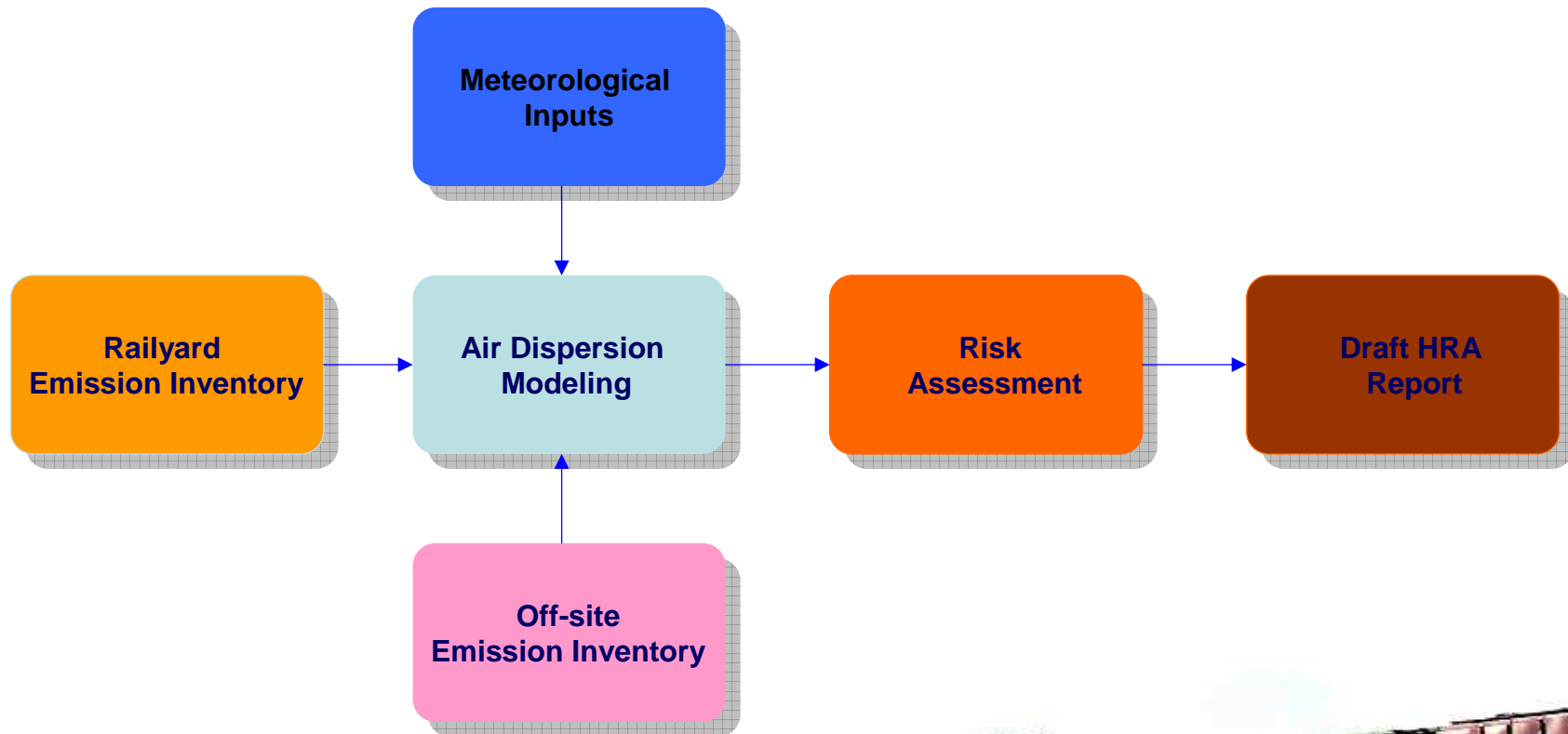
## ➤ Health risk Assessment

- Concentration distributions → health impacts
- 70-year-exposure for residents
- 40-year-exposure for workers

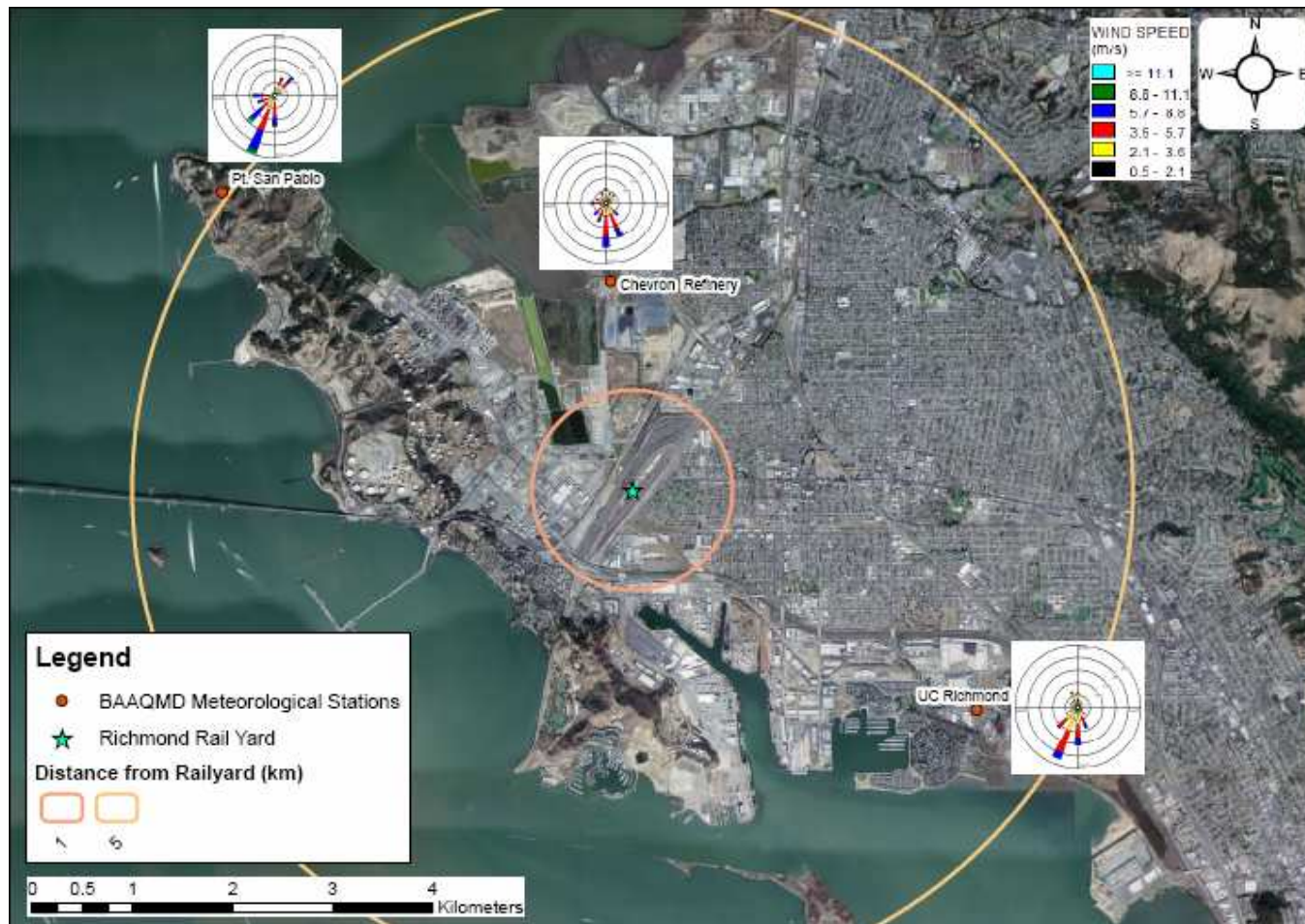




# Flow Chart of Railyard HRA



# Meteorological Inputs



# Air Dispersion Modeling

- Recommended model: AERMOD
- Other acceptable models: ISCST3, CALPUFF, etc., on a case by case basis.



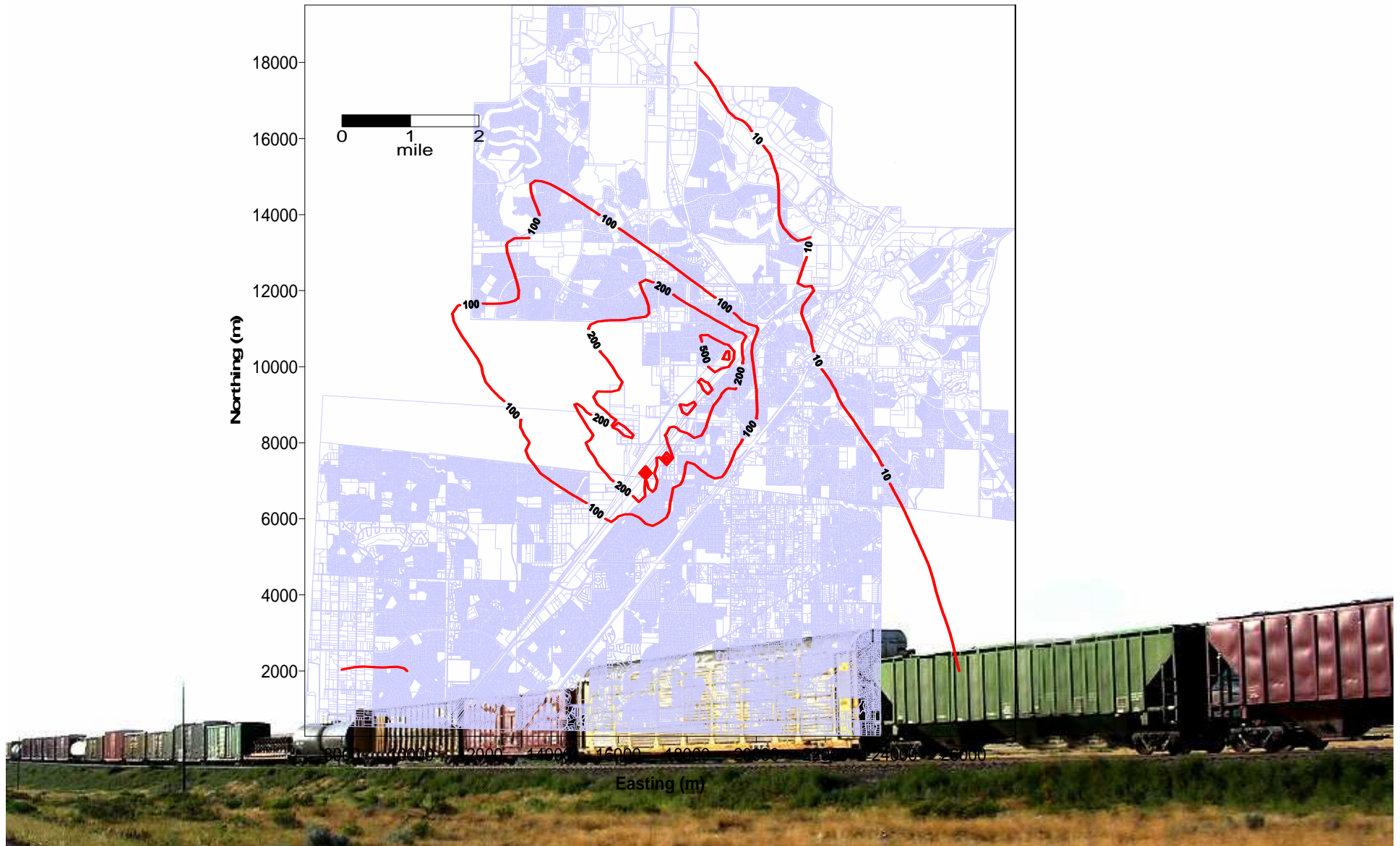


# Risk Assessment

- Consistent with OEHHA HRA Guidelines and ARB Roseville Railyard Study.
- Estimate cancer risk, non-cancer chronic and acute health impacts.



# Risk Assessment



# Railyard Health Risk Assessment Schedules

Draft Health Risk Assessments to be Completed by <u>December 31, 2006</u>		Draft Health Risk Assessments to be Completed by <u>December 31, 2007</u>	
Railyard	Company	Railyard	Company
Commerce/Eastern	BNSF	Barstow	BNSF
Hobart	BNSF	San Bernardino	BNSF
Richmond	BNSF	San Diego	BNSF
Stockton	BNSF	Colton	UP
Watson	BNSF	Dolores/ICTF	UP
Commerce	UP	Industry	UP
LATC	UP		
Mira Loma	UP		
Stockton	UP		
Oakland	UP		





# Community Involvement

- **Public workshops on Draft ARB Railyard Health Risk Assessment Guidelines:**
  - Northern California: 8/28/2006 (Sacramento)
  - Southern California: 8/30/2006 (Commerce)
- **Community meetings to discuss draft findings at each designated railyard:**
  - Early 2007 (first set of railyard HRAs)
  - Early 2008 (second set of railyard HRAs)
- **Additional discussions on mitigation measures for each designated railyard**



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  - <http://www.arb.ca.gov/railyard/hra/hra.htm>

